

III. Remarks

The Remarks section is divided into three major subsections. The first major subsection addresses the obviousness rejection of claims 1 and 7-12 based on the combination of Masucci (US Patent No. 6,498,667) in view of Sierens et al (US Patent No. 5,930,262) or Wright et al (US Patent No. 6,411,410). The second major subsection addresses the obviousness rejection of claims 1 and 7-12 based on the combination of Proctor (US Patent No. 5,872,645) in view of Sierens et al (US Patent No. 5,930,262) or Wright et al (US Patent No. 6,411,410).

As detailed below, Applicant respectfully traverses the rejections and requests allowance of the claims. As detailed below, the Applicant's invention contains and claims novel features not disclosed in the cited references.

A. Masucci And Sierens Together Do Not Render Claims 1 and 7-12 of The Present Invention Obvious Because The References Do Not Disclose “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength different than the first wavelength to the optical line terminal through the optical transmission line”.

Applicant has carefully reviewed and analyzed the Examiner's Office communication and has also carefully reviewed the disclosures in the Masucci (US Patent No. 6,498,668) and Sierens et al (US Patent No. 5,930,262) patents. After this review, Applicant respectfully disagrees with the Examiner's rejections based on the combination being anticipatory and obvious.

The Examiner has cited the combination of Masucci (US Patent No. 6,498,668) in view of Sierens et al (US Patent No. 5,930,262). Claims 1 and 7-12 of the present application are all claims

that each include the following limitation “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength different than the first wavelength to the optical line terminal through the optical transmission line”.

Time division multiple access (TDMA) is a technology for shared medium networks. It allows several users to share the same medium by dividing it into different timeslots. The users transmit in succession, each using their own timeslot. This allows multiple users to share the same transmission medium while using only a portion of its total bandwidth.

Even if we assume that Masucci discloses the other elements of the claims, which Applicant disputes, Sierens does not disclose “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength...” in the location cited by the Examiner. The Sierens reference cited by the Examiner (col. 6, lines 8-19 and col. 8, lines 22-32) discloses TDMA in the upstream direction, but only Frequency Division Multiplexing to separate ONUs, not different wavelengths as claimed herein. Therefore, the Sierens patent cannot and does not disclose “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a **second wavelength** different than the first wavelength to the optical line terminal through the optical transmission line”. Sierens specifically states in column 6, lines 17-20 “In the latter network subgroups of terminal stations can be defined which are separated in downstream and upstream direction by frequency division multiplexing, each these subgroup including terminal stations which share a **single upstream** carrier by time division multiple access.” Sierens does not disclose a second wavelength or the use of TDMA in a downstream application. Therefore, the combination does not disclose all of the elements in Applicant’s claims.

Applicant respectfully submits that the Sierens reference does not read on this application, and that the Masucci/Sierens combination does not render obvious the present invention as claimed in claims 1 and 7-12.

B. Masucci And Wright Together Do Not Render Claims 1 And 7-12 Of The Present Invention Obvious Because The References Do Not Disclose”.

Applicant has carefully reviewed and analyzed the Examiner’s Office communication and has also carefully reviewed the disclosures in the Masucci (US Patent No. 6,498,668) and Wright (US Patent No. 6,411,410) patents. After this review, Applicant respectfully disagrees with the Examiner’s rejections based on the combination being anticipatory and obvious.

Similar to the discussion above, the Examiner has cited the combination of Masucci (US Patent No. 6,498,668) in view of Wright (US Patent No. 6,411,410). Claims 1 and 8-11 of the present application are all claims that each include the following limitation “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength different than the first wavelength to the optical line terminal through the optical transmission line”.

Again, even if we assume that Masucci discloses the other elements of the claims, which Applicant disputes, Wright does not disclose “a second plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a second wavelength...” in the location cited by the Examiner. Wright, as the Examiner points out, describes Figure 2 as follows:

FIG. 2 shows, by way of example, parts 11 of a communications network embodying the present invention. In the FIG. 2 example, an OLT 12 is connected to five different

ONUs 14.sub.1 to 14.sub.5 by way of a passive optical network 6 including optical fibres 8 and an optical splitter 10. For the sake of simplicity, in this example the OLT 12 is adapted to transmit the downstream traffic to the ONUs 14.sub.1 to 14.sub.5 using just two optical signals S1 and S2 having different respective wavelengths λ_1 and λ_2 . It will, however, be understood that in practice more wavelengths could be used, for example 4, 16 or even 32 different wavelengths would be possible in the downstream direction.

For the sake of simplicity again, in this example only a single wavelength λ_x is used in the upstream direction by all of the ONUs 14.sub.1 to 14.sub.5 to transmit data in a predetermined TDMA format to the OLT 12. However, it will be appreciated that more than one wavelength could be used by the ONUs to transmit data to the OLT 12.

The only potentially applicable reference contained herein is the final sentence. It should first be noted that Figure 2, which is the subject of this description, contains only one frequency (λ_x) in the upstream direction (towards the OLT). Therefore, the figure itself teaches against its own description. Secondly, this sentence is ambiguous, since “more than one wavelength could be used” could mean a different wavelength (other than the λ_x wavelength coming from the ONUs.

Furthermore, even if this ambiguous reference, which does not describe the drawing it purports to, is given every benefit of the doubt, it makes absolutely no reference that the network is “**configured for** optically transmitting TDMA signals of a second wavelength different than the first wavelength to the optical line terminal through the optical transmission line”. The Wright reference does not disclose a network that is “configured for” optically transmitting a second TDMA signal using a second wavelength. In its broadest interpretation, the reference merely states that a second wavelength “could be used”.

Lastly, the Wright reference does not make any mention of why a signal with a second wavelength in the upstream direction could be beneficial. As such, the reference does not make such a combination obvious, since no mention is made of any potential applications utilizing the additional upstream wavelengths. Moreover, the fact that the possibility is mentioned, with no accompanying claims or further description, argues for the proposition that such a system has no value or commercial importance. The fact that Applicant is currently selling such a system in a commercially successful manner leads to the conclusion that such a combination of elements was not obvious at the time Applicant filed this application.

**C. CLAIMS 1 AND 7-12 ARE NOT RENDERED OBVIOUS OVER PROCTOR
IN VIEW OF SIERENS OR WRIGHT**

The Examiner opines that Proctor (US Patent No. 5,872,645) teaches an optical communication network with several of the elements contained in this Application. While Applicant is not in agreement with this characterization, the above discussion of the Sierens and Wright references illustrate the important differences between these patents and the application under review here. It is Applicant’s contention that even if the Proctor reference contained all of the elements that the Examiner posits, the Sierens and Wright references fail to add the necessary remaining elements

to read on Applicant's invention. In particular, as stated in the above section, Sierens and Wright fail to teach a first plurality of optical network units connected to the optical line terminal and configured for optically transmitting TDMA signals of a first wavelength through the optical transmission line and a second plurality of optical network units connected to the optical line terminal and *configured for optically transmitting TDMA signals of a second wavelength different than the first wavelength* to the optical line terminal through the optical transmission line.

Specifically, the Sierens reference cited by the Examiner (col. 6, lines 8-19 and col. 8, lines 22-32) discloses TDMA in the upstream direction, but only Frequency Division Multiplexing to separate ONUs, not different wavelengths as claimed herein. Further, the numerous distinctions between the Wright reference and the invention disclosed by Applicant are discussed in detail above.

IV. CONCLUSION

As discussed in detail above, the cited art does not have significant elements of the present invention, including "a second plurality of optical network units connected to the optical line terminal and **configured for optically transmitting TDMA signals** of a second wavelength different than the first wavelength to the optical line terminal through the optical transmission line". The Examiner has conceded that the Masucci and the Proctor references fail to disclose this element, and the Applicant has shown that the Sierens and Wright references cited by the Examiner also fail to disclose this, and other, elements. Furthermore, even if it is concluded that, in combination, these references do disclose all of the elements of Applicant's claims discussed herein, a conclusion which Applicant would strongly disagree with, it would have been far from obvious to someone of ordinary skill in the art to combine the references.

Specifically, the Examiner cited the following motivations to combine these references: reduction of interference between the signals; avoiding the collisions at the central station; providing

the optical communication system with high speed and high capacity; and reducing the cost of the system. While these may be advantages of Applicant's invention, such motivations (e.g. high speed, high capacity, low cost) are present in most, if not all, advances. However, such motivations should not render "obvious" any advances that achieve these results. Applicant's invention, when filed, was not obvious to someone of ordinary skill in the art.

In light of the above remarks, the Applicant respectfully requests that the Examiner grant allowance to the pending claims. Applicant believes that the claims are proper, definite, and define novel subject matter that is also not obvious.

If for any reason, this application is not believed to be in full condition for allowance, Applicant respectfully requests the constructive assistance and suggestion of the Examiner pursuant to M.P.E.P. section 2173.02 and section 707.07(j) in order that the undersigned can place this application in fully allowable condition.

Respectfully submitted,

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